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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
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August 4, 1995

Fred J. Hempel
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Region Nine, California Division
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

Subject: Biological Opinion for Routine Highway Maintenance Activities in Kern and Inyo Counties, California (1-8-95-F-37)

Dear Mr. Hempel:

This biological opinion responds to the Federal Highway Administration's (FHWA) request for formal consultation with the Fish and Wildlife Service (Service) pursuant to section 7(a) of the Endangered Species Act of 1973, as amended (Act). Your request, dated May 8, 1995, was received by us on May 22, 1995. At issue are the effects that the proposed highway maintenance and repair activities to be undertaken by the California Department of Transportation (Caltrans, as FHWA's agent) in Kern and Inyo counties, California, may have on the desert tortoise (*Gopherus agassizii*), a federally listed threatened species.

This biological opinion was prepared using information accompanying your May 8, 1995, request for consultation and contained in our files, and informal consultation between Service and Caltrans staff.

Biological Opinion

It is the opinion of the Service that the proposed actions are not likely to jeopardize the continued existence of the desert tortoise. Portions of the highways on which the proposed action would occur cross land designated as critical habitat for the desert tortoise. Because the roads and adjacent lands within Caltrans' rights-of-way that would be affected by this action lack most, if not all, of the constituent elements of critical habitat, the actions discussed in this biological opinion will not adversely effect critical habitat.

Description of the Proposed Action

The proposed action would involve a variety of maintenance and repair activities, including limited scale road widening, within those portions of Kern and Inyo counties that support desert tortoise habitat. These counties comprise Caltrans' District 9. The proposed activities would occur within Caltrans' rights-of-way (ROW) on District 9's portions of highways 14, 58, 127, 178, 190, and 395. The routine maintenance and repair activities proposed by Caltrans are grouped into the following project categories.

TYPE 1: HIGHWAY REHABILITATION, AND DRAINAGE AND SAFETY STANDARDIZATION.

Highway rehabilitation would consist of grinding the existing road pavement and overlaying the prepared surface with new asphaltic-concrete (AC). Actions included under standardization of safety equipment would be grading of shoulders and road embankments, placement of shoulder backing, striping, and instituting traffic control procedures. Widening of existing, sub-standard, shoulders to the standard ten-foot width and adjustment or replacement of the guardrails are included in this category. Drainage standardization would consist of grading of existing roadside channels, installation of new roadside channels or drainage devices, and extension of culverts. Areas for equipment and material storage and spoils disposal may be required for Type 1 and other activities; for the purposes of this consultation, they are considered to be Type 1 activities.

TYPE 2: CHECK DAM, CATCH BASIN, STILLING BASIN, OR DRAINAGE IMPROVEMENT CONSTRUCTION.

These projects consist of construction of new erosion control devices adjacent to existing culverts or bridges, or repair of existing facilities within Caltrans' ROW. Check dams and stilling basins generally require excavation of soil within the wash or channel and its bank and placement of concrete or rock slope protection. Sediment catch basins would require excavation of areas on the inlet side of culverts or ditches, and the construction of dikes to direct the flow of water. Dike construction would be limited to Caltrans' ROW.

TYPE 3: WIDENING OF TWO-LANE HIGHWAYS FOR TURN POCKETS, ACCELERATION/DECELERATION LANES, PASSING LANES, TWO-WAY LEFT-TURN LANES, INTERSECTION WIDENING, AND CURVE REALIGNMENT.

Turn pockets and acceleration/deceleration lanes generally require widening of both sides of the existing roadway and shoulder for up to 0.25 mile from an intersection. Passing lanes usually consist of widening of the roadway by one lane for a distance of up to one mile. Two-way left-turn lanes typically require widening both sides of the roadway by a half-lane width and restriping for the length of the project. Curve realignment usually requires moving the roadway or excavation of the roadway and adjacent shoulders.

FHWA's and Caltrans' request for consultation contains the following mitigation measures intended to reduce the effects of maintenance and repair projects on the desert tortoise. Measures

four through nine are excerpted from the "Hands Off Pardner" information packet accompanying the request for consultation.

Measures Applicable to All Maintenance and Repair Actions:

1. Vegetated areas that are likely to be affected by equipment or construction activities should be carefully checked for desert tortoises immediately before such activities.

2. Before moving vehicles or equipment, project personnel shall carefully check under parked vehicles or equipment for desert tortoises. Desert tortoises found within the parking, traffic or construction areas would be moved by an authorized handler to a location away from danger and only as specified in the biological opinion.

3. All personnel involved in the construction project shall receive desert tortoise protection training. Training shall include discussion of the fragility of desert habitats, the importance of the desert tortoise to the environment, the protections afforded to the desert tortoise by the Act, and the correct protocol to follow should a desert tortoise be encountered.

4. The resident engineer (RE) or the RE's designee shall be responsible for implementing these mitigation measures and shall be the point of contact for this project.

5. A litter control program shall be instituted on maintenance and repair actions. The program includes the direction to all workers to eliminate food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area and to maintain covered trash containers that are regularly removed from the project area.

6. All pre-construction activities within identified desert tortoise habitat shall occur in the presence of a Service or California Department of Fish and Game (CDFG) approved biologist. The biologist must accompany any crew or person involved in that activity and shall have the authority to direct movements of equipment and personnel to avoid harm to a desert tortoise or its burrow.

   All hazards to desert tortoises that may be created by this activity, such as, but not limited to, auger holes, shall be eliminated or back-filled before the work crew leaves the site.

   No material drops, equipment storage, construction shacks, or other facilities, shall be placed within desert tortoise habitat areas without clearance from the approved biologist.

7. All construction activity shall be confined within the project area. At no time shall equipment or personnel be allowed outside this area. This measure includes, but is not limited to, temporary haul roads or access roads unless otherwise approved by the Service, CDFG, or other parties such as the Bureau of Land Management or the U.S. Forest Service. All activities within the construction zone shall be conducted in such a manner as to prevent or eliminate any harm or disturbance to desert tortoise habitat adjacent to the project or outside the shoulder areas.

8. If any desert tortoises are:
   a) sighted in the project area, they must be immediately reported to the RE.
   b) jeopardized by any form of construction activity, that activity shall cease until the approved biologist is able to move the desert tortoise to safety.
   c) excavated during construction, work must stop in the immediate area and the RE notified.
   d) injured during the course of construction, the RE must be notified and the approved biologist shall transport the animal to a qualified veterinarian.
   e) killed during the course of construction, they must be left in place and the RE must be notified. The approved biologist will document and remove the carcass.

Additional Measure Applicable to Type 2 & 3 Maintenance and Repair Actions:

9. Project areas should be checked for desert tortoises and their burrows before construction following Service protocol or clearance surveys. If burrows are found, they must be examined by an authorized biologist to determine if desert tortoises are present. Any desert tortoises present must be moved before disturbance of the burrow. If desert tortoise burrows are damaged or removed by the project, they must be replaced.

Additional Measure Applicable to Type 1 & 3 Maintenance and Repair Actions:

10. All grindings and asphaltic-concrete waste shall be stored within previously disturbed areas and a minimum of 150 feet from any culvert, wash, or stream crossing.

11. New construction or maintenance activities occurring outside of Caltrans' ROW are not considered in this biological opinion.

Effects of Proposed Project on the Listed Species

Species Account

The desert tortoise is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. It also occurs in Sonora and Sinaloa, Mexico. In California, the desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave desert scrub, and the lower Colorado River Valley subdivision of Sonoran desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from two to eight inches, diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner and Brown 1982, Turner 1982, and Schamberger and Turner 1986). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, but are occasionally found in windblown sand or in rocky terrain (Luckenbach 1982). Live desert tortoises have been found in the California desert from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of about 1,000 to 3,000 feet (Luckenbach 1982, Schamberger and Turner 1986).

Desert tortoises are most active in California during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rain storms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. Further information on the range, biology, and ecology of the desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Luckenbach (1982), Weinstein et al. (1987), and U.S. Fish and Wildlife Service (1994).

On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered. In its final rule, dated April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened. The Service designated critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule, published February 8, 1994. Following the recommendations of the desert tortoise recovery team, the final rule designating critical habitat established six Recovery Units over the range of the Mojave population of the desert tortoise. Within Recovery Units, the Service defined at least one Critical Habitat Unit patterned after the Desert Wildlife Management Area concept recommended by the recovery team. A final recovery plan for the desert tortoise was published by the Service in June, 1994.

The recovery plan is the basis and key strategy for recovery and delisting of the desert tortoise (Service 1994). The plan divides the range of the desert tortoise into six distinct population segments or recovery units and recommends establishment of 14 Desert Wildlife Management Areas throughout the Recovery Units. Within each Desert Wildlife Management Area, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. As part of the actions needed to accomplish recovery, land management within all Desert Wildlife Management Areas should restrict human activities that negatively affect desert tortoises (Service 1994). The plan identifies a number of paved routes (including Highway 395) in Desert Wildlife Management Areas along which vehicle-strikes are a significant source of desert tortoise mortality. To reduce this source of mortality, the plan recommends that portions of these routes be fenced to exclude desert tortoises.

The Kern County portion of Highway 395 crosses the Fremont-Kramer critical habitat unit (CHU), one of four CHUs designated in the Western Mojave Recovery Unit. CHUs and recovery units as defined in the final rule designating critical habitat for the desert tortoise were patterned after the Desert Wildlife Management Area and Recovery Unit concepts in the recovery plan. The Western Mojave Recovery Unit consists of approximately 4,753,000 acres, located entirely in California. Vegetation within this Recovery Unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub (in higher elevations). Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. The Fremont-Kramer CHU covers approximately 518,000 acres in Kern, Los Angeles, and San Bernardino counties, California.

Given the large geographic area throughout which the subject action would occur and the uncertainty regarding the timing and location of future maintenance actions, Caltrans did not provide site-specific surveys for desert tortoises with the request for consultation. With the

exception of lands adjacent to Highway 395 in the Rand Mountains, in general, desert tortoises no longer occur in great abundance within the area of responsibility of Caltrans' District 9.

The decline of desert tortoise populations in the Mojave Desert is attributable to the cumulative load of human and disease-related mortality accompanied by habitat destruction, degradation, and fragmentation. Vehicle-strikes along Highway 395 and other heavily traveled routes in the Mojave Desert result in a significant number of desert tortoise mortalities (Nicholson 1978, LaRue 1992). By preventing crossing, these routes also limit dispersal of desert tortoises and effectively fragment desert tortoise populations. Throughout much of the Mojave Desert other important factors contributing to the decline in the number of desert tortoises are the past and continuing impacts associated with livestock grazing, mining, illegal collecting, vandalism (shooting), and off-highway vehicle use.

Analysis of Impacts

Individual desert tortoises within the project area may be subject to injury or death as a result crushing by construction vehicles or equipment in the project ROW or by straying of vehicles or equipment into desert tortoise habitat outside of the ROW. Desert tortoises could become trapped in steep-sided excavations left as a result of work activity. Individual desert tortoises could be taken by predators, such as common ravens (*Corvus corax*) and coyotes (*Canis latrans*) that can be attracted to the site by human activities. Uninformed workers could also collect or vandalize desert tortoises that they may encounter when in the project area. Noise generated at the construction sites could damage the ears of desert tortoises or it may cause them to leave the area. Desert tortoises that are moved as a result of the proposed activities could be at risk if their burrows were destroyed by project activities or if they void their bladders while being handled and are subsequently unable to extract sufficient moisture from food or drinking sources.

As noted above, most of the habitat that would be lost during the limited road widening covered under this biological opinion has likely been degraded to some degree by human activities. However, widening of a highway would bring less disturbed areas into the proximity of the highway and thus expose desert tortoises to impacts similar to those that have degraded its existing borders.

The mitigation measures Caltrans proposes to implement during the subject action are based upon past technical assistance from the Service. To date, these mitigation measures have minimized habitat loss and prevented project-related take on maintenance and construction activities similar to those proposed in this action.

The Service believes the effects described above are not likely to jeopardize the continued existence of the desert tortoise. We base this conclusion on the following facts:

1. The project description includes mitigation measures that will reduce the take of individual desert tortoises and minimize further degradation of their habitat. Following implementation of similar mitigation measures, past maintenance actions proceeded without take of desert tortoises.

2. The areas likely to be affected by the proposed maintenance actions are already disturbed by past construction and maintenance work and other human activities.

3. The proposed action does not increase fragmentation of desert tortoise populations.

Cumulative Effects

Cumulative effects are those impacts of future State and private actions affecting endangered and threatened species that are reasonably certain to occur in the action area. Future Federal actions will be subject to the consultation requirements established in section 7 of the Endangered Species Act, and therefore are not considered cumulative to the proposed action. Most of the actions that are reasonably expected to occur within the vicinity of the highways on which maintenance activities will occur will be subject to section 7 consultations because much of the adjacent lands are public property administered by the Federal government.

The Service has contacted the counties of San Bernardino, Kern, Riverside, Inyo, and Los Angeles (and the incorporated areas within the desert) regarding the listing of the desert tortoise and its implications for city- and county-permitted activities. Many cities within the range of the desert tortoise in San Bernardino, Los Angeles, and Kern counties have expressed interest in obtaining a section 10(a)(1)(B) incidental take permit from the Service. Regional planning efforts, such as the West Mojave Coordinated Management Plan, could serve as model habitat conservation plans for local governments. Cumulative impacts of future State and private projects will be addressed in regional plans, such as this, and in the section 10(a)(1)(B) incidental take permit process.

Incidental Take

Section 9 of the Endangered Species Act prohibits the take of listed species without special exemption. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and 7(0)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this incidental take statement. The measures described below as reasonable and prudent measures and terms and conditions to reduce take are non-discretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

The Service anticipates the following forms of take:

1. Two (2) desert tortoises per year in the form of direct mortality or injury resulting from construction activities.

2. Twenty (20) desert tortoises per year in the form of harassment through moving desert tortoises from harm's way during highway maintenance activities.

This biological opinion does not exempt from section 9 prohibitions any form of take that is not incidental to Caltrans' maintenance and repair work in Kern and Inyo counties covered by this biological opinion.

If the incidental take anticipated by this biological opinion is met, the FHWA or Caltrans (as the agent for the FHWA) shall immediately notify the Service in writing. If the incidental take authorized by this biological opinion is exceeded, the FHWA or Caltrans (as the agent for the FHWA) shall immediately notify the maintenance crews to cease activities resulting in take and shall reinitiate formal consultation with the Service.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize incidental take.

1. Worker education programs and well-defined operational procedures shall be implemented, with the cooperation of on-site qualified biologists, to avoid the take of desert tortoises and minimize loss of their habitat during construction activities.

2. Take of desert tortoises, through injury or death due to the straying of construction and maintenance equipment beyond project areas shall be reduced through establishment of clearly defined work areas.

3. Take of desert tortoises, through injury or death, found within the proposed project area shall be reduced through the removal of these animals to undisturbed areas adjacent to the construction sites.

4. Attraction of common ravens and other potential desert tortoise predators to project areas shall be reduced to the maximum extent possible.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the FHWA or Caltrans (as the agent for the FHWA) is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. With the exception of terms and conditions 8, 9, 10, 11, and 14, the following terms and conditions are based on the mitigation measures proposed by FHWA and Caltrans in their request for formal consultation. Several of the proposed measures are modified herein.

Terms and conditions 1 through 4, 6 through 10, 12, 13, 15 and 16 implement reasonable and prudent measure 1. Term and condition 5 implements reasonable and prudent measure 2. Term and condition 15 implements reasonable and prudent measure 3. Term and condition 11 implements reasonable and prudent measure 4.

Terms and Conditions Applicable to All Maintenance and Repair Actions

1. The FHWA or Caltrans shall designate a field contact representative (FCR) who shall be responsible for overseeing compliance with the terms and conditions and for coordination with the Service and CDFG. The FCR shall have the authority to halt all construction activities that are in violation of the terms and conditions. The FCR shall have a copy of all terms and conditions when work is being conducted on the site. The FCR may be the resident engineer, an authorized biologist (see below), or other appropriate person.

2. All persons employed on the construction project shall receive instruction regarding the desert tortoise before performing on-site work. Instruction shall include the importance of the desert tortoise to the environment, recovery efforts for the desert tortoise, implications of the Endangered Species Act, and the importance of following all terms and conditions provided in the biological opinion. Employees shall be notified that they are not authorized to handle or otherwise move desert tortoises encountered on the project site. An education program that has been previously approved by the Service may be used to satisfy this term and condition, provided project-specific mitigation measures are fully discussed.

3. Only biologists authorized by the Service shall handle desert tortoises. The FHWA or Caltrans shall submit the name(s) of the proposed authorized biologist(s) to the Service for review and approval before beginning on-site activities. The authorized biologist(s) shall have the authority to halt all activity that may pose a threat to desert tortoises and to direct the movements of equipment and personnel to avoid harm to desert tortoises. When handling desert tortoises, the authorized biologist(s) shall follow the guidelines in Appendix A "Guidelines for Handling Desert Tortoises During Construction Projects" (Desert Tortoise Council 1994).

4. All vegetated areas within the range of the desert tortoise that may be affected by maintenance or maintenance-related activities shall be checked for the presence of desert tortoises by the authorized biologist immediately before such activities.

5. The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. Work area boundaries shall be delimited with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows, identified by the qualified biologist, shall be avoided to the extent possible. To the extent possible, previously disturbed areas within the project site shall be used for the storage of equipment, location of office trailers, and parking of vehicles. If Caltrans believes it is necessary to develop storage or parking areas outside of disturbed areas, the appropriate Service shall be contacted to discuss amending this biological opinion. The authorized biologist(s), in consultation with the Caltrans, shall ensure compliance with this measure.

6. While in the range of the desert tortoise, before moving a parked vehicle, workers shall inspect beneath the vehicle before moving it. If a desert tortoise is present, the worker shall carefully move the vehicle only when necessary and when the desert tortoise would not be injured by moving the vehicle. Alternatively, the worker shall wait for the desert tortoise to move from under the vehicle or contact the authorized biologist to remove the desert tortoise.

7. Except as necessary for project related activities, cross-country travel by vehicles shall be prohibited.

8. At the discretion of the authorized biologist(s), projects with a potential for take of desert tortoises shall either be monitored by an authorized biologist or temporarily fenced before the onset of ground disturbing activities. Fencing shall be of 0.75 to 1 inch mesh material to prevent entry of desert tortoises. The authorized desert tortoise biologist shall monitor installation of the desert tortoise-proof fence. After fence installation and removal of any desert tortoises from within the exclosure, an authorized biologist would not be required on-site.

9. Open trenches, auger holes, or other excavations that may act as pit-fall traps that lie outside of a fenced exclosure shall be inspected by an authorized biologist a minimum of three times per day and just before back-filling. Any desert tortoises found shall be safely removed and relocated out of harm's way. For open trenches, earthen escape ramps shall be maintained at intervals of no greater than 0.25 mile. Other excavations that remain open overnight shall be covered to prevent them from becoming pit-fall traps.

10.. No firearms or pets shall be allowed at the work area. Firearms carried by authorized security and law enforcement personnel are exempt from this term and condition.

11.. All food-related trash items shall be placed in a container which precludes entry by wildlife, such as common ravens and coyotes. Food-related trash shall be regularly removed from the construction site and disposed of at an approved refuse disposal site. Workers shall refrain from deliberate feeding of wildlife.

12. Yearly, beginning January 1, 1997, the FCR and authorized biologist(s) shall prepare a report as described in Appendix A. The report shall make recommendations for modifying the terms and conditions to enhance desert tortoise protection or to make the terms and conditions more workable for Caltrans. The report shall provide an estimate of the actual acreage disturbed by the addition of turn pockets, acceleration/decelerations lanes, and catchment and stilling basins.

Additional Terms and Conditions Applicable to Type 2 and 3 Maintenance and Repair Actions

13. The entire project area shall be surveyed for desert tortoises and their burrows by the authorized biologist(s) before the start of ground disturbing activities. Such site-clearance surveys shall follow the Service's established protocol. All desert tortoises found shall be removed following the guidelines in Appendix A.

14. Desert tortoises moved from maintenance sites shall be marked for future identification following methods outlined in Appendix A.

Additional Term and Condition Applicable to Type 1 and 3 Maintenance and Repair Actions

15. All grindings and asphaltic-concrete waste shall be stored within previously disturbed areas and a minimum of 150 feet from any culvert, wash, or stream crossing.

16. If Caltrans fails to comply with any of the reasonable and prudent measures or terms and conditions of this biological opinion, the FHWA shall suspend funding of Caltrans' repair and maintenance activities until such time that Caltrans is in compliance with these terms and conditions.

Disposition of Dead, Injured, or Sick Desert Tortoises

Upon locating dead, injured, or sick desert tortoises, initial notification must be made within three working days of the finding to the Service's Division of Law Enforcement in Torrance at (310) 297-0062. The Service's field office in Ventura sall also be notified at (805) 644-1766. Written notification to the Service's law enforcement office and the appropriate field office must be made within five calendar days and include the date, time, and location of the carcass, a photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The FHWA or Caltrans shall endeavor to place the remains of intact desert tortoises with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the shell has been damaged, the information noted above shall be obtained and the carcass left in place. The FHWA or Caltrans should consider marking the carcass in a manner that would not be toxic to other wildlife to ensure that it would not be re-recorded in the future.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the FHWA or Caltrans through a biologist before implementation of the action. Injured animals should be transported to a qualified veterinarian. Should any treated desert tortoises survive, the Service should be contacted regarding the final disposition of the animals.

Conservation Recommendations

In furtherance of the purposes of the Endangered Species Act (sections 2(c) and 7(a)(1)) that mandate Federal agencies to utilize their authorities to implement programs for the conservation of listed species, we recommend the following actions:

1. Caltrans should monitor the survivorship of desert tortoises that are removed from work areas. This information would be used to develop more successful techniques for moving desert tortoises from harm's way and to more accurately assess take associated with this type of activity.

2. Caltrans should coordinate with National Biological Survey (NBS) personnel conducting research on the effectiveness of roadside desert tortoise barriers. When feasible, Caltrans should consider incorporating roadside desert tortoise barriers when undertaking maintenance and repair activities. The Service can provide contacts with the NBS for this research, if necessary.

3. The Service recommends that FWHA and Caltrans install mesh fencing along highways in District 9 where morality of desert tortoises is occurring. Service staff would be available to work until FHWA and Caltrans to determine which areas should be fenced.

The Service requests notification of the implementation of any conservation recommendations so we can be kept informed of actions that either minimize or avoid adverse effects, or that benefit listed species or their habitats.

Conclusion

This concludes formal consultation on FHWA's and Caltrans' proposal for routine maintenance activities in desert tortoise habitat in Kern and Inyo counties, California. Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is reached; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action (50 CFR 402.16). Any questions or comments should be directed to Kirk Waln of the Service's Ventura Field Office at (805) 644-1766.

Sincerely,

Diane K. Noda

Diane K. Noda
Field Supervisor

Appendix

REFERENCES

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